

The University Students Online Reading Behavior: Gender, Subject Area, and Academic Achievement in the Digital Era

by Dr. Sultan, S.pd.

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**The University Students Online Reading Behavior:
Gender, Subject Area, and Academic Achievement in the Digital Era**

Sultan

Faculty of Languages and Literature, Universitas Negeri Makassar, Indonesia

Sakinah Fitri

Faculty of Languages and Literature, Universitas Negeri Makassar, Indonesia

Bio-profiles:

Sultan. He is a senior lecturer in the Department of Indonesian Language Education, Faculty of Languages and Literature, Universitas Negeri Makassar, Indonesia. He earned his doctoral degree in Indonesian Language Teaching. His research interests include teaching reading, critical literacy, and critical discourse analysis. E-mail: sultan@unm.ac.id.

Sakinah Fitri. She is a lecturer in the Department of Indonesian Language Education, Faculty of Languages and Literature, Universitas Negeri Makassar, Indonesia. She earned her master degree in Indonesia Language Teaching. Her research interests include Indonesian language teaching and literature. Email: sakinah.fitri@unm.ac.id

Abstract

The advancement of the internet has led to the transformation of student reading behavior: from offline to online. The current study aimed to reveal university student reading behavior based on gender, subject area, and academic achievement. A quantitative approach to survey was employed in this study. The respondents of the survey was comprised of 632 students from Universitas Negeri Makassar, Indonesia. Data

were gathered using the Online Reading Behavior Questionnaire. Analysis of Variance (ANOVA) and t-test were run for data analysis. The results showed that there was a difference in student reading behavior based on gender, especially that related to the efforts of the students to obtain reading materials, use time for reading, reading beliefs, and reading habits. In addition, based on the subject area, discrepancies were found among students in obtaining reading materials and spending time on reading. However, based on academic achievement, there was no significant difference between high and low-ability students' online reading behavior. The findings of this study can contribute to the design of learning activities and training of student reading behavior in universities.

Keywords: *online reading, reading attitude, reading behavior, reading literacy*

Introduction

According to the International Telecommunication Union (2014), there are more than three billions internet users in the world (40,4 %). The proliferation of internet usage has an implication on reading activity. Adolescents, for example, have undergone a period of transition from offline to online reading (Coiro, 2012). Mokhtari, Reichard, & Gardner (2009) reported that university students could spend 12.35 hours per week on web surfing. In addition, they have revealed that 52.88 % of the respondents (N= 539) used an average of 5.7 hours per week for recreational reading and the other 58.99% spent 10.85 hours on academic reading. Research by Huang, Capps, Blacklock, and Garza (2014) showed that university students used 8.95 hours weekly for digital reading. OECD (2015) also found that students performed online activities for two hours every day. Kurata, Ishita, Miyata, & Minami (2016) state that readers dedicate up to 70% of their time for digital reading. The findings of the studies indicate that readers have grown a big interest in online reading, either for academic or recreational purpose. Previous research findings have concluded that people usually spend a great amount of time browsing online reading materials. Compared to those studies, this study was specifically aimed to reveal university student reading behavior in the digital era, including types of reading materials, effort to obtain reading materials, beliefs and habits developed by the students when

reading. These indicators would be explained categorically based on gender, subject area, and academic achievement.

Internet variables have led to significant changes in reading behavior. A quite fascinating finding by Lim, Bong, & Woo (2015) suggested that Korean students who were not normally involved in reading traditional (printed) materials had a tendency to read online. It is obvious that the more interactive, dynamic, and abundant internet reading materials have affected university student reading behavior. In other words, online materials have helped shape readers' reading behavior and diverse reading behaviors are influenced by different variables.

The internet, in fact, has carried a fresh reading attitude and behavior. Alternative reading materials, media, and purposes show the specific behavior of a reader. Reading behavior is affected by internal and external factors. Mansor, Rasul, Rauf, dan Koh (2013) point out three factors that may impact student reading behavior: (1) student background, including gender, age, residence, and ethnic; (2) parents influence on diverse reading materials prepared, time used for reading, assistance provided, and reading companionship; and (3) the role of school, such as that related to the number and variation of reading materials, reading time, availability of reading areas, and teacher strategy in providing guidance for students when they read. In relation to digital reading, readers' reading behavior may vary depending on their social background. Therefore, this study was performed to uncover the difference in student online reading behavior based on gender, subject area, and academic achievement.

Gender is one of the variables that have an impact on one's reading behavior. Clark and Foster (2005) found that: (1) compared to men, women had found reading more interesting, (2) men loved reading in order to become a qualified job seeker, (3) women retold stories they have read more frequently than men, and (4) both men and women expected the provision of a conducive environment for reading from schools. Other research has shown that university student behavior in reading newspapers, magazines, tabloids, and books differed across gender (Datta & Macdonald-Ross, 2002; Karim & Hasan, 2007). There is also a difference in interest in reading (Khairuddin, 2013). Women are more likely to favor reading compared to men (Bussert-Webb & Zhang, 2016). Boys usually spend more time on recreational reading than girls (Lim, Bong, & Woo, 2015).

The previous research findings have indicated that male and female readers are different in some aspects of reading. However, the difference between male and female university students' behavior in online reading has been inconclusive, yet was to be investigated in the present study.

Student subject area is another determinant factor of university student reading behavior. Karim & Hasan (2007) discovered that ICT students read more online reading materials than art students. University students from different subject areas will possess different reading achievement and self-efficacy (Maltepe, 2016; Karabay, Kusdemir Kayiran, & Isik, 2015). Unlike the previous studies, this study would reveal in details university student online reading behavior from a number of aspects, including; (1) variation in reading materials, (2) the student effort to obtain the materials, (2) the use of time for reading, (4) beliefs developed when reading, and (5) reading habit (Mansor, Rasul, Rauf, & Koh (2013).

It is believed that the internet has brought a novelty to university student reading culture. Huang, Capps, Blacklock, & Garza (2014) argue that the internet has transformed university student reading activity and learning experience. This study, which attempted to unveil the aspects of university student online reading behavior, is expected to provide a contribution to the development of reading culture at the university. In contrast to other related research which was conducted in developed countries with better reading culture, the present study was carried out in Indonesia, a developing country whose learners and society show low rates of reading interest and achievement (OECD, 2013 & 2016). According to Yang (2007), Asian students are not accustomed to reading so that holding a book is considered only as part of schoolwork.

Method

A quantitative survey was employed in this study. As a matter of fact, a cross-sectional survey (Creswell, 2010) was used to obtain data on university student reading behavior in relation to the usage of online reading materials. Comparative analysis was performed to investigate the difference in the participants' reading behavior based on gender, subject area, and academic achievement.

The population of this study consisted of the second and fourth year students from Universitas Negeri Makassar, Indonesia. The samples of this study were 632 representatives from all faculties of the target university. Stratified random sampling was employed to select the samples. The profile of the samples was presented in Table 1.

Table 1. The Profile of the Research Samples

Category	Subcategory	N	%
Subject Area	Educational Science	103	16.30
	Engineering	113	17.88
	Language and Literature	131	20.73
	Mathematics and Natural Science	121	19.15
	Social Sciences	164	25.94
Gender	Male	180	28.48
	Female	452	71.52
Grade Point	3.51–4.00	330	52.22
Average (GPA)	3.01–3.50	244	38.60
	≤3.00	58	9.18

A questionnaire was developed to collect the data. The instrument was adapted from Mansor, Rasul, Rauf, & Koh (2013). It consisted of two parts, respondent personal information, and reading behavior statements. Personal information includes information related to the participant faculty, subject area, academic year, GPA, and ethnic, while reading behavior statements attempt to uncover the respondent types of reading materials, effort to obtain the materials, time used for reading, reading belief, and reading habit.

The questionnaire contained closed-ended items with four alternative answers. Prior to the distribution, the validity and reliability of the questionnaire were examined. The instrument validity was ensured using Pearson Product Moment with a significance level of 5%, where items were considered valid if the probability of the correlation result was < .05. On the other hand, the items would be considered invalid if the correlation coefficient >.05, and thus removed from the instrument. The reliability of the instrument

was measured using Cronbach Alpha consistency. Items were considered reliable when the Cronbach Alpha coefficient $>.70$ (Cortina, 1993).

IBM SPSS 23 was run to analyze the data statistically, while descriptive analysis was performed to obtain mean scores. Independent sample t-test was used to reveal the difference in the participants' reading behavior based on gender and one-way analysis of variance (ANOVA) was employed to unveil the difference in the respondents' reading behavior based on their subject areas and academic achievement. Scheffe test was carried out for further analysis when ANOVA showed a significant difference in mean scores.

Results

Gender and University Student Reading Behavior

A significant difference was found between male and female university students in (1) effort to obtain reading materials ($t=5.262$; $p=.000$), (2) time spent on reading ($p=2.672$; $p=.008$), (3) reading belief ($t=4.4.07$; $p=.000$), and (4) reading habit ($p=3.427$; $p=.001$). The descriptive analysis indicated that (1) female students showed a more persistent effort ($M=20.18$, $SD=3.212$) compared to male ($M=18.68$, $SD=3.335$); (2) female students used time more effectively ($M=4.54$, $SD=1.510$) compared to male ($M=4.18$, $SD=1.555$), (3) female students had a more positive belief in reading ($M=26.05$, $SD=2.373$) compared to male ($M=25.11$, $SD=2.532$), and (4) female students had developed a better reading habit ($M=36.42$, $SD=3.809$) compared to male ($M=35.22$, $SD=4.422$). There was no difference in materials read by male and female students ($t=.171$; $p=.864$).

Table 2. Gender and University Student Reading Behavior

Aspects of Reading Behavior	Gender	N	M	SD	Df	T	P
Types of reading materials	Male	180	48.55	5.669	630	.171	.864
	Female	452	48.47	5.038			
The effort to obtain the reading materials	Male	180	18.68	3.335	630	5.262	.000
	Female	452	20.18	3.212			

Time used for reading	Male	180	4.18	1.555	630	2.672	.008
	Female	452	4.54	1.510			
Reading belief	Male	180	25.11	2.532	630	4.407	.000
	Female	452	26.05	2.373			
Reading habit	Male	180	35.22	4.422	630	3.427	.001
	Female	452	36.42	3.809			

Subject Area and University Student Reading Behavior

Based on subject area, a significant difference was found in the effort to obtain reading materials ($F=4.465$, $p=.001$). Scheffe post hoc test showed that the students from the Faculty of Mathematics and Natural Sciences differed significantly in the effort to obtain reading materials compared to the students who came from the Faculty of Educational Science and Faculty of Engineering. The Faculty of Mathematics and Natural Sciences group of students were reported to have the most persistent effort to obtain reading materials ($M=20.67$, $SD=3.382$), while the least persistent effort was shown by the Faculty of Educational Sciences students ($M=19.10$; $SD=3.037$). There was also a significant difference observed in time spent on reading ($F=5.548$, $p=.000$). Scheffe post hoc test indicated that the Faculty of Mathematics and Natural Sciences students were significantly different from the Faculty of Language and Literature, Faculty of Social Sciences, and Faculty of Engineering students in terms of time spent on reading. The students from the Faculty of Mathematics and Natural Sciences spent the most plentiful time on reading ($M=4.97$, $SD=1.602$), while the students from the Faculty of Educational Sciences spent the smallest amount of time on reading ($M=4.21$; $SD=1.460$). No significant difference was observed among the participants in terms of the types of reading materials that were read ($F=.100$; $p=9.82$), reading belief ($F=1.962$; $p=.099$), and reading habit ($F=.869$; $p=.482$).

Table 3. Subject Area and University Student Reading Behavior

Aspects of Reading Behavior	Subject Area	N	M	SD	F	p
Types of reading materials	Languages and Literature	131	48.31	4.722	.100	9.82
	Educational Sciences	103	48.71	5.374		
	Mathematics and Natural Science	121	48.50	5.724		
	Social Sciences	164	48.57	4.969		
	Engineering	113	48.40	5.502		
The effort to obtain the reading materials	Languages and Literature	131	19.83	2.922	4.465	.001
	Educational Sciences	103	19.10	3.037		
	Mathematics and Natural Sciences	121	20.67	3.382		
	Social Sciences	164	19.86	3.430		
	Engineering	113	19.13	3.537		
Time used for reading	Languages and Literature	131	4.27	1.457	5.548	.000
	Educational Sciences	103	4.57	1.432		
	Mathematics and Natural Sciences	121	4.97	1.602		
	Social Sciences	164	4.21	1.460		
	Engineering	113	4.27	1.599		
Reading belief	Languages and Literature	131	25.70	2.391	1.962	.099
	Educational Sciences	103	25.93	2.348		
	Mathematics and Natural Sciences	121	26.27	2.432		
	Social Sciences	164	25.54	2.361		
	Engineering	113	25.58	2.722		
Reading habit	Languages and Literature	131	36.168	3.8554	.869	.482
	Educational Sciences	103	35.903	4.1645		

Mathematics and Natural Sciences	121	36.612	3.5151
Social Sciences	164	35.750	4.1155
Engineering	113	36.044	4.4629

Academic Achievement and Reading Behavior

The results of the analysis showed no significant difference in online reading behavior between low and high achievers. There was no significant difference in the types of reading materials that were read ($F=.079$, $p=.924$), effort to obtain the reading materials ($F=.778$, $p=.460$), time used for reading ($F=.778$, $p=.090$), reading belief ($F=.860$, $p=.424$), and reading habit ($F=.577$, $p=.562$).

Table 4. Academic Achievement and Reading Behavior

Aspects of Reading Behavior	Academic Achievement	N	M	SD	F	p
Types of reading materials	3.51–4.00	330	48.54	5.072	.079	.924
	3.01–3.50	244	48.50	5.382		
	≤ 3.00	58	48.24	5.453		
The effort to obtain the reading materials	3.51–4.00	330	19.88	3.283	.778	.460
	3.01–3.50	244	19.70	3.375		
	≤ 3.00	58	19.31	3.256		
Time used for reading	3.51–4.00	330	4.39	1.541	2.413	.090
	3.01–3.50	244	4.58	1.558		
	≤ 3.00	58	4.12	1.299		
Reading belief	3.51–4.00	330	25.87	2.528	.860	.424
	3.01–3.50	244	25.76	2.438		
	≤ 3.00	58	25.41	2.069		
Reading habit	3.51–4.00	330	36.03	4.042	.577	.562
	3.01–3.50	244	36.02	4.123		

≤ 3.00	58	36.02	4.123
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Discussion

There is a significant difference in student reading behavior based on gender. Male and female students differ greatly in (1) effort to obtain reading materials, (2) using the time for reading, (3) reading belief, and (4) reading habit, but there is no difference in types of reading materials. Female students have shown a more persistent effort to obtain reading materials, make use of a greater amount of time for reading, have a positive reading belief, and develop a positive reading habit compared to male students. One of the factors that might influence such findings is the female students' metacognitive knowledge which helps shape their positive reading attitude. Female students have been reported to possess a higher level of knowledge in using metacognitive strategy compared to male in reading digitally (Wu, 2014). The assistance of metacognitive knowledge has contributed to the difference between male and female university students in reading online.

The results of this study that have revealed female students positive attitude toward online reading have confirmed previous research findings on offline reading (Clark and Foster, 2005; Lim, Bong, & Woo, 2015; Webb & Zhang, 2016). Even in offline reading, female college students can perform much better than male students. Therefore, it can be concluded that female students are more likely to display a more positive attitude toward reading both printed materials and online.

The results of this study suggest that gender does not affect student reading preference, which means that both female and male students access the same reading materials. This finding is corroborated with that by (Foasberg, 2014) who mentions textbook, academic article, and fiction as the most frequently accessed reading materials by university students. Both male and female students possess high needs for academic interests so that they do not show differences in types of reading that are read online. Research findings showing that there was no significant difference in materials read by male and female students are also caused by the ease of access to reading. Chiang (2014) revealed that easy and unlimited access to reading materials constituted the key to

improvement in reading activity. Internet encourages male and female students to easily access various reading materials.

On the other hand, a significant difference was observed based on student subject area. The difference among students was found in their effort to obtain reading materials and time spent on reading, while there was no discrepancy among students in terms of types of reading materials, reading belief, and reading habit. The Faculty of Mathematics and Natural Sciences students have shown a more lasting effort and dedicated a greater amount of time to reading compared to other students from other faculties. This finding is in contrast with those by (Al-Busaidi, 2017) who found that college was a predictor of language students' linguistic ability where humanities students perform better than sciences students. This finding suggests that the characteristics of students' learning activities can influence their behavior to read online. The Faculty of Mathematics and Natural Sciences students normally learn through tutorial, responses, and laboratory practicum. These intense learning routines require them to explore a variety of reading materials provided on the internet. As a result, students from Faculty of Mathematics and Natural Sciences have to search and browse various reading materials online and spend more of their time on reading.

The difference between the Faculty of Mathematics and Natural Sciences and humanities (Faculty of Languages and Literature, Faculty of Educational Sciences, and Faculty of Social Sciences) students' reading behavior may also be influenced by their learning styles. Andrei, Izabela, & Valentina (2014) found that mathematics and science students were more skillful in identifying important information, making a connection, and using more meaningful resources than social sciences students. These learning styles have encouraged mathematics and science students to study more diverse materials and use a greater amount of time for reading.

However, no significant difference in online reading behavior, including types of reading materials, effort to obtain the materials, reading belief, and the reading habit was reported by the low and high achievers. Thus, academic achievement cannot be considered as a distinguishing variable in predicting university student online reading behavior. This finding indicates a shift in low-achiever behavior of reading online. The internet grants easier access for low-ability students to diverse reading materials so that

the students have become more motivated to read. This definitely has had an effect on their reading behavior. As a result, students with low academic achievement are able to perform well as, spend as much time as, and develop a similar positive belief in reading online to students with high academic achievement.

This study has unveiled that internet has brought some changes to university students' reading behavior. The ease of access to various reading materials encourages independence in reading. In the past, reading materials used to be prepared for university students in order to motivate them to perform reading activity (Yang, 2007). However, the presence of the internet has encouraged university students to select and access a wide array of reading materials based on their preference, without having to depend on other people or libraries.

Conclusions

The present study has revealed some differences in student online reading behavior based on gender. The results of this study have confirmed previous research findings on student offline reading behavior across gender. This study has concluded that female students show more positive reading behavior compared to male students in reading online. Female students read more diverse materials, spend more time on reading, and have more positive reading beliefs. Metacognitive knowledge in reading online is believed to be a factor that may influence the reading behavior of female students.

It was also found that the Faculty of Mathematics and Natural Sciences students had more positive online reading behavior compared to other students from other faculties. There are significant differences found in the effort to obtain reading materials and the use of reading time among students. The characteristics of students' learning activities and learning styles characterized by their subject area also influence their online reading behavior. Academic achievement cannot be considered as a factor that may contribute to student reading behavior. The internet has made it easier for both low and high ability students to access various reading materials. As a result, they are able to read more than what they used to do in the past.

Pedagogical Implication and Recommendation

The result of this study has implications on lecturers and library managers. Lecturers have to design a program to improve students' interest in reading based on the students' habits, values, and efforts to obtain reading materials. A more intense effort needs to be invested in encouraging male students to develop a more positive reading attitude. Librarians need to pay special attention to the availability of digital reading materials of which characteristics and types suit the students' interest. The availability of the reading materials that conform to the interest of the students will potentially boost their fondness for reading. The findings of this study have implications for fostering reading and learning activities in universities. Student metacognitive knowledge and learning styles to utilize online reading materials need to be trained so that the students can maximize their reading activities and learning achievement. The availability of the digital reading materials that have impacted on university students' reading behavior must be followed by applicable reading methods.

It is expected that there will be further qualitative studies aiming to reveal factors that affect the difference in university students' reading behavior based on gender and subject area in this digital era. The tendency of students from the humanities group to have less reading behavior requires serious attention. To amplify the findings of this study, it is also recommended for future researcher to take into account student socio-economic background, parent education, and geographical factors (urban and rural) in analyzing their reading behavior in the digital era. In terms of learning, it is also important for the lecturer to conduct classroom action research that aims to improve student positive reading behavior.

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